Procurement Administrative Lead-time

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The views and opinions expressed or implied in the research paper are those of the author; no agency or department of the United States Government has officially sanctioned any of these views and opinions.

Abstract

The purpose of the research is to examine and recommend a more appropriate beginning time for the start of procurement administrative lead time (PALT) for sole-source, major weapon system contract awards greater than $500 million within the Department of Defense. The scope of this research is confined to PALT. It examines the activity which precedes solicitation release, which includes Acquisition Requirements Lead Time (ARLT), the time attributable to the contract requirements owners to develop and submit a procurement ready contract request package contract award. Contract requirements owners' activities consist of five phases, three milestone decisions, and four additional decisions as outlined in Department of Defense (DoD) Defense Acquisition System Life Cycle. Currently, PALT is defined as the number of days between solicitation release and contract award. Identifying an earlier start to PALT to include the contract requirements development process can create incentives to drive greater efficiencies in the requirements development process, which has long been recognized as one of the most significant sources of delay in the acquisition lifecycle. Accurately predicting PALT provides commanders and decision-makers with the ability to make better strategic business decisions to support the warfighter.

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Chapter 1 - Introduction

Accelerating acquisitions has been a priority for Congress and the U.S. Department of Defense (DoD) since at least the fiscal year (FY) 2016 National Defense Authorization Act (NDAA) (Pub. L. 114-92, 2015). The DoD has used various approaches to acquire systems faster than normal (for example, see Moeller, 1979; Clark, 1993; Schoonover, 1994; McNutt, 1998; Lorell, Lowell, and Younossi, 2006; Williams, Drezner, McKernan, Shontz, and Sollinger, 2014; McKernan, Drezner, and Sollinger, 2015; and Van Atta, Kneece, and Lippitz, 2016).

In today's environment of evolving adversarial threats, advancing technology, shrinking budgets, and changing security concerns, acquisition leaders must make more informed management decisions to deliver needed capabilities to the warfighter. The increasing complexity, cost, and sophistication of defense systems warrant a greater need for the most accurate schedule estimations (Schwartz, 2014). Accurately predicting a schedule is challenging, but it provides commanders and decision-makers with a more realistic expectation of when a capability to support warfighter needs will be delivered (Chung, Feldman & Manuel, 2018). Currently, Congress and DoD define the start date of PALT as the date the solicitation is released, but acknowledge that capturing data during requirements development phase or ARLT could enhance the insights derived from measuring PALT (OFPP, 2020). Because the current definition of PALT negates the pre-solicitation lead time factors that occur in advance of the

solicitation release and contribute to the time necessary for a contracting officer to turn an acquisition request into a solicitation, this research study seeks to identify and recommend an earlier, more appropriate start time for accumulating data for measuring and reporting PALT.

Background/Significance of Research

The vision of the Federal Acquisition System is to deliver on a ***timely basis*** the best value product or service to the customer, while maintaining the public's trust and fulfilling public policy objectives (Regulation, 2020, para (a)). Defense acquisition professionals must continuously deliver capabilities and weapon systems to its customer, the warfighter, with affordability and speed to "retain overmatch—the combination of capabilities in sufficient scale to prevent enemy success—and to ensure that America's sons and daughters will never be in a fair fight" (Trump, 2017, p. 28). According to Ellen Lord, the former Under Secretary of Defense for Acquisition and Sustainment, the Department of Defense delivers the best weapon systems in the world; however, the countries that pose the greatest threat to national security surpass the speed at which it delivers their systems, eroding the United States' overmatch (*DoD Acquisition Reform Efforts*, 2017).

> Leadership within the Legislative and Executive Branches and Department of Defense—the Senate Armed Services Committee (SASC), former (or perhaps "then") President Donald Trump, former Secretary of Defense James Mattis, former Secretary of the Air Force Heather Wilson, Former Undersecretary Ellen Lord, and combatant commanders—universally recognized and supported the need to reform

> the defense acquisition system for speed, as evidenced by a concerted effort to address acquisition speed. The ubiquity of the call for reform and speed in legislation, strategy documents, and testimonies proves the importance of schedules, both PALT and program schedule, to our national security and national defense (Chung, Feldman & Manuel, 2018, p 10).

Recent legislation from the last three fiscal years (FYs) reflects Congress' attention to defense acquisition reform. The National Defense Authorization Acts (NDAA) for FY2016, FY2017, and FY2018 contain an average of 82 provisions related to acquisition reform, compared to an average of 47 provisions in the previous 10 NDAAs (Schwartz & Peters, 2018). NDAA provisions related to speed include:

- increasing the use of rapid acquisition authorities,
- authorizing the secretary of defense to waive provisions of acquisition law or regulation, and
- requiring the secretary of defense to create an advisory panel to review defense acquisition regulations for ways to streamline and improve the efficiency and effectiveness of the defense acquisition process and maintaining defense technology advantage. (FY2016 NDAA, 2015, Sec. 803, 806, 809)

As outlined by Chung, Feldman and Manual (Chung, Feldman and Manual, 2018, p. 11-13), in addition to recent legislation, strategy documents from the president of the United States and Secretary of Defense echo the need for defense acquisition reform:

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The 2018 National Defense Strategy (NDS) outlines Former Secretary Mattis' strategic approach to support Former President Trump's four pillars of national interest. The 2018 NDS emphasizes a need to reform acquisition processes and policies to promote greater performance and affordability. The DoD previously implemented several acquisition reforms to combat cost overruns, schedule delays, and performance shortfalls, yet federal agencies still face significant challenges in procuring and managing major defense acquisitions (GAO, 2018). For example, federal agencies still use outdated management practices, struggle to integrate and adapt to change, and fight bloated bureaucracies (Trump, 2017). This bureaucratic approach fosters a culture that minimizes risk above all else and prioritizes "exceptional performance at the expense of providing timely decisions, policies, and capabilities to the warfighter" (Mattis, 2018, p. 10).

Former Under Secretary Lord focused on procurement lead time [PALT] in her testimony before the SASC, stating that reducing the time required to award contracts is a priority. Former Under Secretary Lord concluded that the DoD could reduce procurement lead time by up to 50% of the current timeline, which will significantly reduce costs while simultaneously accelerating the required time to field new capabilities (*DoD Acquisition Reform Efforts*, 2017). She initiated six pilot programs to test the DoD's contracting agility and demonstrate the DoD's ability to responsibly reduce PALT (DoD Acquisition Reform Efforts, 2017). Former Under Secretary Lord set an interim goal of 210 days for the procurement lead time of these six pilot programs, but would like to eventually decrease that procurement lead time to 180 days (DoD Acquisition Reform Efforts, 2017).

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According to Chung, Feldman and Manuel (Chung, Feldman, Manuel, 2018):

> The remarks made by our nation's leadership within the Legislative and Executive Branches indicate the need for acquisition enterprise reform and highlight prioritizing speed as a key element. These sentiments are not new, and parties interested in defense acquisition have emphasized faster acquisitions for decades. This emphasis and interest motivated subsequent studies on the problems caused by inaccurate schedule estimates and schedule overruns. (p 10).

As citied by Chung, Feldman, Manuel (Chung, Feldman, Manuel, 2018, p. 13-14) a 1998 dissertation written by U.S. Air Force Major Ross McNutt discussed six distinct, negative impacts of weapons system schedule delay:

- "Systems [are] not ready when needed" (p. 39). McNutt identified 17 specific weapons systems that began development at least five years prior to the start of Operation Desert Storm but were not delivered until after the war. Seven of these systems provide capabilities that would have met critical needs during the war.
- "Systems [are] not meeting current needs when fielded" (p. 41). New MDAPs take nearly 10 years to develop. Operational environments and threats constantly change, therefore, the specific threat(s) a program was meant to address may no longer exist by the time the U.S. fields the system.
- "New systems [are] fielded with dated technology" (p. 41). McNutt recognized that weapons systems were delivered to the field without the most current technologies, due to an exponential technological growth paired with elongated development times. We still experience exponential

technological growth in today's environment; therefore, the same impact of elongated schedule or schedule delay exists.

- "Slow response to new or emerging threats" (p. 43). The United States developed the AIM-9X in response to the Soviet Archer AA-11, which the Soviets developed in 1985. The AIM-9X did not reach initial operational capability (IOC) until November of 2003 ("AIM-9X," 2003). This extended development time left U.S. fighter aircraft without the specific defense capability it needed for 18 years.
- "Slow response to known safety problems" (p. 43). McNutt mentioned two systems designed to mitigate and resolve safety issues. The slow development of these systems led to multiple aircraft accidents and collisions that could have been avoided.
- "Effects of development time on cost" (p. 44). McNutt stated that as development time increases, program costs increase: ACAT I programs that take seven years to complete cost $1.2 billion on average, programs that take from seven to 14 years cost $1.8 billion on average, and programs that take longer than 14 years cost $3.6 billion on average.

McNutt (1998) also discussed the influence of the RFP's expected or desired program schedule on the contractor's proposed schedule. He stated, "A contractor's primary consideration in proposing a project's schedule is the program office's desired schedule. The company's development capabilities are given much less consideration" (McNutt, 1998, p. 237). In other words, contractors simply propose the government provided schedule back to the government to win the contract, regardless of the development requirements or contractor's capabilities (McNutt, 1998).

The six impacts of long acquisition schedules still exist, and the process begins with PALT. The importance of acquiring and fielding relevant, current, and reliable

technology to the warfighter on a timely basis remains unchanged through the years (Chung, Feldman, Manuel, 2018).

Problem Statement

Defining PALT is a topic that causes procurement experts much worry. Defining PALT has traditionally been hard to do since pinning down the “initial” moment of requirement identification is notoriously difficult (Rockwell, 2020). Establishing a common PALT definition as early in the acquisition process as possible, as well as a plan to measure and report it can help the government identify delays in the procurement process. Equipped with a common definition, agencies can then use common data to make improvements (Rockwell, 2020). The current definition for PALT does not include the time that occurs in advance of the solicitation. It also omits the time attributable to the contract requirements owners to develop warfighting requirements and the time they require to develop and submit a procurement ready package for contract award. Therefore this research study seeks to identify and recommend an earlier, more appropriate start time for accumulating data for measuring and reporting PALT.

By examining the activity phases in the life cycle for a Major Capability Acquisition that precede issuing the solicitation, this research seeks to recommend an earlier, more appropriate start for accumulating data for measuring and reporting PALT. The ability to routinely capture data earlier in the acquisition process could significantly enhance the insight derived from measuring PALT; decrease the procurement lead time; and ultimately, deliver capabilities to the warfighter in a timelier manner.

Research Question

Should DoD define the start date of PALT as the date the solicitation was released, as outlined by Congress in the NDAA for FY 2019? Or, is there an earlier start date that could significantly enhance the insight derived from measuring PALT; decrease the procurement lead time; and ultimately, deliver capabilities to the warfighter in a timelier manner?

Research Methodology

The research method for this research paper is the literature review methodology of research. The research will be based primarily on peer reviewed literature. More, specifically, the study closely examines the five (5) phases of the Defense Acquisition System for Major Acquisitions, as defined in the Department of Defense Instruction (DoDI) 5000.85, and associated literature, in order to gain insights into whether there are more appropriate start dates for PALT. Currently DoD defines the start date of PALT as the date the solicitation was released, as outlined by Congress in the NDAA for FY 2019.

Chapter 2 - Literature Review

The purpose of this literature review is to research relevant and key documents that define the PALT process, impact the process, or relevant literature that makes recommendations that are germane to the research question covered in this research topic. The primary search engine used to collect literature for this research paper was Google Scholar using the following key word and phrase search and results: Definition of Acquisition Lead Time: 4,890,000 results; Procurement Acquisition Lead Time in NDAA 2018, 19,200 results; Major weapon system acquisition, 31,700 results. This research used 41 relevant reports, laws, memorandums, information papers, and handbooks.

This chapter provides a close examination of previous studies and literature on PALT within the defense acquisition environment. First a definition of PALT. Next, an outline of the procedures for collecting PALT data and an outline of the Pre-PALT (ARLT) activity, as published in the Defense Federal Acquisition Supplement (DFARS), and Procedures Guidance and Information (PGI) published by Defense Pricing and Contracting (DPC) Directorate. Then, the organizational structure and overview of the Defense Acquisition System (DAS). Finally, a close examination of the acquisition activities (DoD 5000 type acquisition) that precede PALT, as part of ARLT, highlighting the purpose and activities that occur in each.

A. PALT defined.

The Defense Acquisition University defines a schedule as (DoD, 2001):

> the process [that] examines all program activities and their relationships to each other in terms of realistic constraints of time, funds, and people, i.e., resources. In program management practice, the schedule is a powerful planning, control, and communications tool that, when properly executed, supports time and cost estimates, opens communications among personnel involved in program activities, and establishes a commitment to program activities and costly element of defense acquisition procurement. (p. 1)

The Administrator for Office of Federal Procurement and Policy (OFPP) issued the following public notice in the Federal Register seeking public comment on both the proposed definition for PALT and plan for measuring and publicly reporting government-side data on PALT (OFPP, 2020):

> Section 878 of the NDAA for 2019, Public Law 115-232, requires the Administrator of Office of Federal Procurement and Policy (OFPP) to develop and make available for public comment a definition of the term PALT. Section 878 further required that the Administrator develop a plan

for measuring and publicly reporting data on PALT for Federal Government contracts and orders above the SAT {Simplified Acquisition Threshold}. OFPP is proposing to define PALT as “the time between the date on which an initial solicitation for a contract or order is issued by a Federal department or agency and the date of the award of the contract or order.” Section 878 includes this language as a suggested definition. Furthermore, this definition was adopted by the Department of Defense (DoD) pursuant section 886 of the NDAA for FY 18 and DoD implementing instructions. See “Reporting `Solicitation Date' in the Federal Procurement Data System” June 14, 2018, available at *https://www.acq.osd.mil/dpap/policy/policyvault/USA001458-18-DPAP.pdf.*

In instances where draft solicitations are issued generally for the purpose of seeking input from interested parties to assist the Government in finalizing its solicitation, the issuance date for the “initial solicitation” for purposes of the PALT would be the date on which the final solicitation seeking offers, bids, or proposals is issued by the Government. In cases where no solicitation is required, `the date on which an initial solicitation is issued' would be guided by the following instructions, which promote consistent implementation across both civilian and DoD agencies:

For awards resulting from unsolicited proposals, `the date on which an initial solicitation is issued' is the date on which the Government notifies the offeror of proposal acceptance.

> For orders placed against indefinite-delivery contracts where pricing is based on pre-priced line items included in the indefinite-delivery contract and no elements of the order's delivery or performance require negotiation, `the date on which an initial solicitation is issued' is the date of the award of the order.
>
> For the award of a contract under a Broad Agency Announcement (BAA), `the date on which an initial solicitation is issued' is the date when a final combined synopsis/solicitation is issued except:
>
> For two-step BAA's including white paper submissions for review, selection, and subsequent request for full proposals, `the date on which an initial solicitation is issued' is the date when the date when the individual call is issued.
>
> Under BAAs with calls, the date on which an initial solicitation is issued is the date when the individual call is issued.
>
> For open BAAs, when white papers and/or proposals are accepted for review over an extended period (typically open for a year or longer), `the date on which an initial solicitation is issued' is either the date when the Government signs a proposal request (white papers) or the date on which the proposal is submitted, whichever is earlier. (p. 3-4)

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In his memorandum dated September 14, 2018, the Former Assistant Secretary of the Army (Acquisition, Logistics and Technology) (ASA(ALT)) defined PALT as a subset of a larger system he called Acquisition Lead Time (Jette, 2018):

> Acquisition Lead Time (ALT) is defined as the total time required to complete all activities and events leading to contract award. ALT is comprised of two phases: Acquisition Requirements Lead Time (ARLT) and procurement Administrative Lead Time (PALT). ARLT is the time attributable to the requirements owners to develop and submit a procurement ready contract request package. PALT is the time attributable to contracting activities from acceptance of the procurement ready request to contract award. For purposes of this memorandum, Program Executive Officers (PEOs), Program Managers (PMs) and their personnel responsible for contracts constitute requirements owners. (p. 1)

Figure 1:

Army Lead Time (Jette, 2018)

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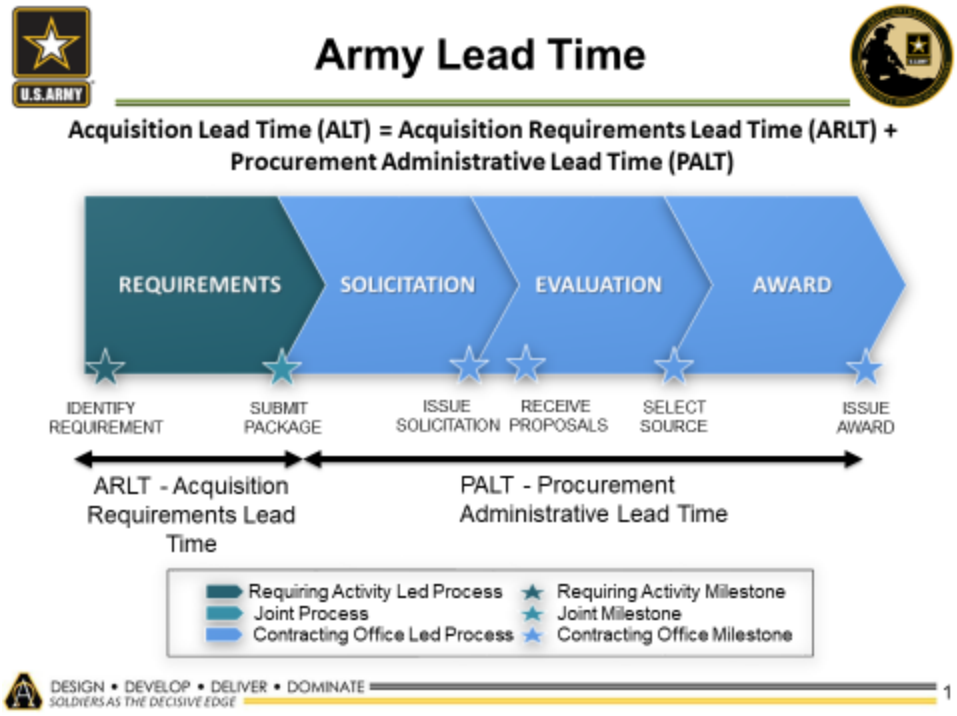

***Figure 2*:**

Acquisition Requirements Lead Time (ARLT) (Jette, 2018)

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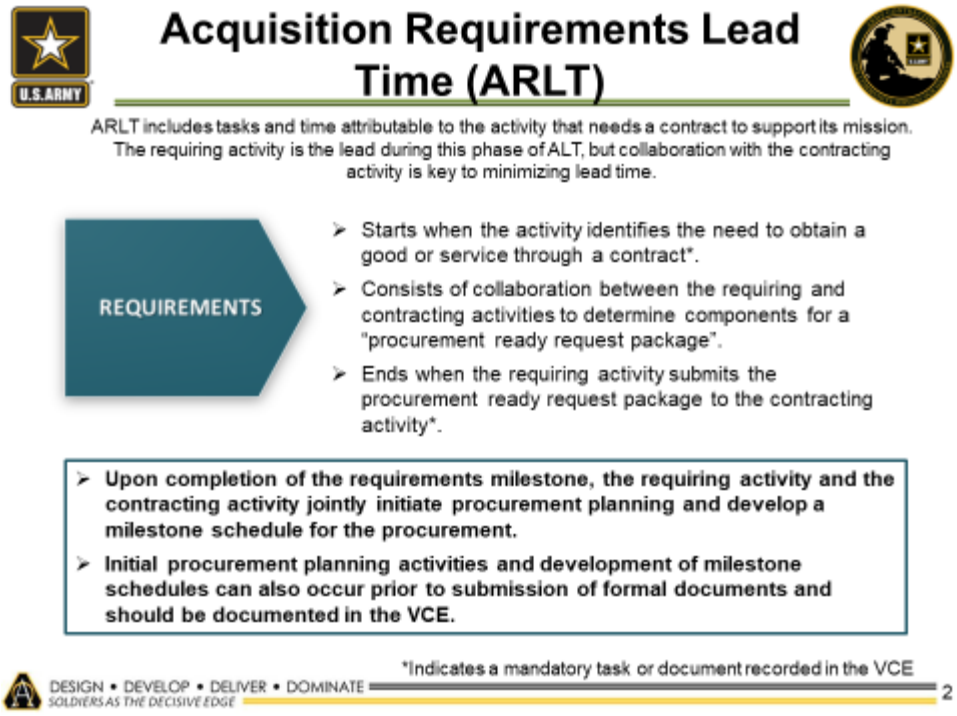


The Administrator of Office of Federal Procurement and Policy (OFPP) summarized the importance of establishing a common definition for PALT and the expected benefits that could be recognized across the services by establishing a common PALT definition (OFPP, 2020):

> Establishing a common definition of PALT (as early in the process as is practical) and a plan for measuring and publicly reporting PALT data are important steps in helping the Federal Government to understand and better address causes of procurement delays. PALT can help to drive continual process improvement and the pursuit of more innovative procurement practices, especially when the data are used in combination with other inputs for evaluating the overall effectiveness of the acquisition process in delivering value to the taxpayer, such as cost and the quality

of the contractor's performance. PALT can also create incentives to drive greater efficiencies in the requirements development process, which has long been recognized as one of the most significant sources of delay in the acquisition lifecycle. For example, increased emphasis on PALT should encourage agencies to take greater advantage of facilitated requirements development workshops, where a trained facilitator leads a multi-functional integrated project team in the development of a mission critical acquisition requirement in days. Use of this practice has largely been limited to DoD but its promise makes it worthy of broader consideration across the Federal Government.

It is expected that as technology improves and the ability to capture better and more comprehensive procurement and requirements data becomes easier, there will be opportunity to collect and track additional data points and timeframes beyond those covered by the proposed definition. For example, the ability to capture data routinely on various aspects of requirements development could significantly enhance the insight derived from measuring PALT. Agencies that may already collect and track additional data points and timeframes outside of the proposed definition, such as from the time a complete requisition package is received by the procurement office, will be encouraged to maintain their broader efforts, as they are able, to assist in the management, support, and evaluation of agency procurement operations. (p. 4)

B. An outline of the procedures for collecting PALT data and the activities that occur during PALT and precede PALT.

Section 878 of the National Defense Authorization Act (NDAA) of 2019 defined Procurement Administrative Lead Time (PALT) as the amount of time from the date on which a solicitation for a contract or task order is issued to the date of an initial award of the contract or task order (OFPP, 2020).

The Defense Pricing and Contracting (DPC) Directorate has created a tool that will provide visibility into PALT and Pre-PALT timelines across DoD programs as is outlined below and found in PGI 204.70 (PGI 204.70, 2019):

> (a) When conducting an acquisition with an estimated value of greater than $250 million, agencies shall ensure planned and actual procurement administrative lead time (PALT) milestone dates are entered into the Procurement Integrated Enterprise Environment (PIEE) module. The PIEE module can be assessed at https://wawf.eb.mil/.
>
> (b) The "planned date indicates the when the milestone is initially expected to be completed and the "actual" date is when the milestone is complete.
>
> (c) The following PALT milestones shall be entered into the PIEE module, if applicable:
>
> (1) The acquisition strategy/acquisition plan approval date

(2) The date the justification and approval is approved

(3) The date a funded purchase request is received by the contracting officer

(4) The date a procurement-ready requirements package is received by the contracting officer.

(5) The solicitation issuance date

(6) The proposal receipt date

(7) The date the technical evaluation is complete

(8) The audit completion date

(9) The date the business clearance is complete

(10) The date the contract clearance is complete

(11) The contract award date.

(d) Planned PALT milestone dates shall be entered into the PIEE module within one week of establishment of the milestones, but no later than the approval date of the acquisition strategy plan. Actual milestone dates shall be entered into the PIEE module no later than one week after occurrence. Milestone dates shall be updated, as necessary, to reflect any changes.

(e) A PowerPoint presentation with screenshots introducing the module is available on the DPC Procurement Toolbox at https://dodprocurementtoolbox.com/site-pages/palt.(p. 1)

Procurement Administrative Lead-time

Section 878 of the National Defense Authorization Act (NDAA) of 2019 defined Procurement Administrative Lead Time (PALT) as the amount of time from the date on which a solicitation for a contract or task order is issued to the date of an initial award of the contract or task order (OFPP, 2020). The definition of PALT begins at PALT milestone (5) above. Milestones (1) – (4) are Pre-PALT milestones, and occur during ARLT, the time attributable to the requirements owners to develop and submit a procurement ready contract request package.

C. The organizational structure and overview of the Defense Acquisition System (DAS).

Moshe Swartz, a specialist in Defense Acquisition, provides the organizational structure and summary of the Defense Acquisition System (DAS) (Schwartz, 2010):

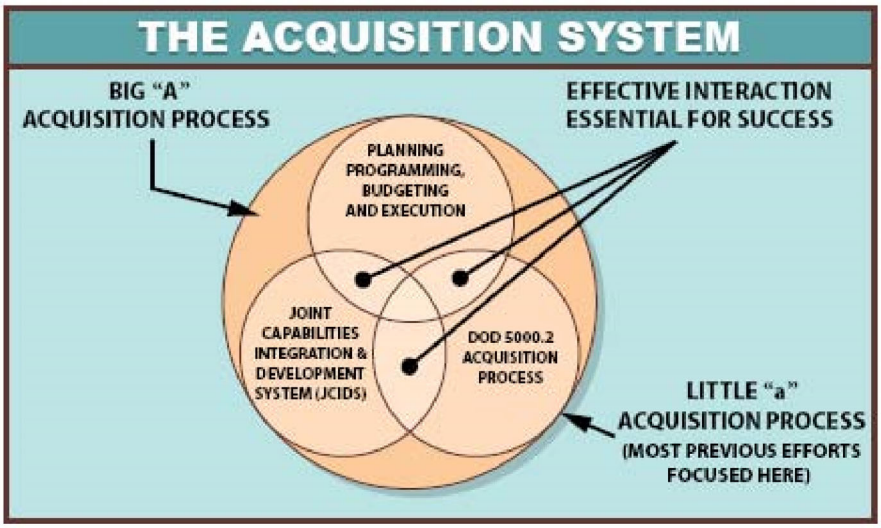
> Every weapon system in the U.S. arsenal is created to satisfy a specific *requirement*, must be paid for by the federal *budget*, and is designed and built within an *acquisition system*. Conceptually, these three steps are organized as
>
> 1. The Joint Capabilities Integration and Development System (JCIDS) – the requirements system,
> 2. The Planning, Programming, Budgeting, and Execution (PPBE) System – the resource allocation or budgeting system, and

3. The Defense Acquisition System (DAS) – the acquisition or procurement system.

These three systems do not report to or fall under a single overarching “system”; rather, they operate in a manner similar to a “system of systems” and are referred to as “Big ‘A’” acquisition (in contradistinction to the Defense Acquisition System which is referred to as “little ‘a’” acquisition). DOD’s defense acquisition structure is characterized below. (p. 3)

***Figure 3*:**

DoD’s Defense Acquisition Structure (Defense Acquisition Assessment Report, 2006)



Swartz defines the Defense Acquisition System (DAS) as (Schwartz, 2010):

> the management process by which the Department of Defense provides effective, affordable, and timely systems to the users, [and it] exists to manage the nation's investments in technologies, programs, and product support necessary to achieve the National Security Strategy and support the United States Armed Forces. (p. 7)

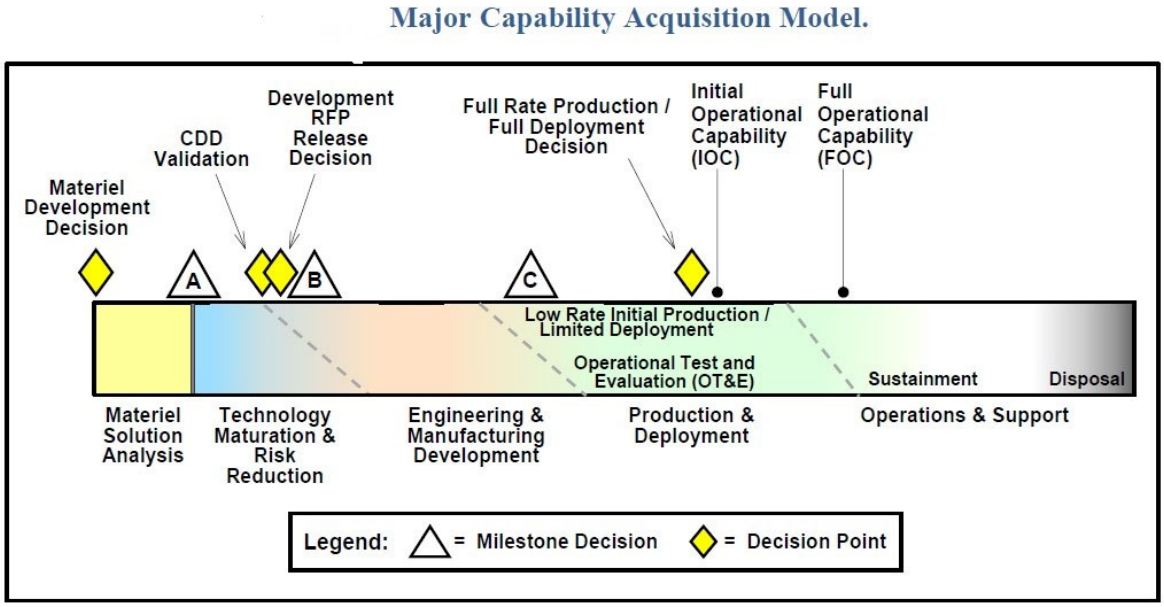
Matt Ambrose of the Defense Acquisition University summarized the interactions and interdependencies within the Acquisition System this way (Ambrose 2017):

> The defense acquisition system cannot operate properly unless it has a good interaction with two other major defense support systems, planning programming budgeting and execution which is how we get our money, and the joint capabilities integration and development system, which is where the users the war fighters document their requirements or their capability needs; so we're not going to start a program unless we have a capability need and we're not going to have a program unless we have money, so we have to make these things work together. It's not an easy thing because PPBE tends to be driven by the calendar, it's a once a year process that we go through to budget money for programs and program money in the out here as well. The JCIDS system tends to be need driven, needs are coming up all the time; so it has its own pace. Defense acquisition system is an event driven system, we want to get whatever we need in terms of data, in terms of testing, in terms of design ready for milestone decision authority to have confidence in that next decision so we can go on to the next phase. Making something that's event driven

> work with something that's need driven, work with something that's calendar driven, tends to be a big challenge. We will see these interactions as we go through the phases. (para. 1)

Figure 4:

Major Capability Acquisition Model (DoDI 5000.85, 2020)



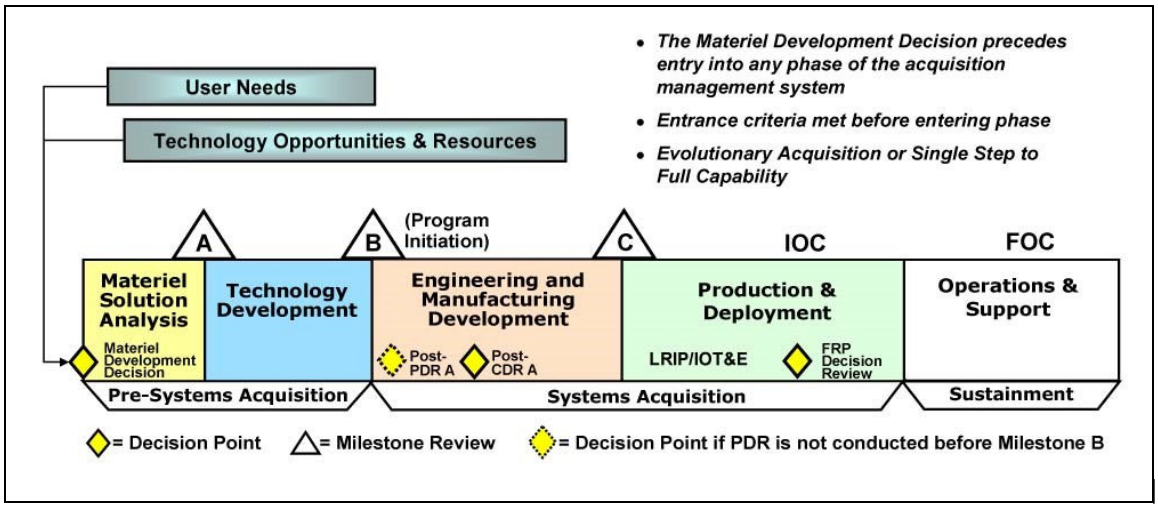
The generic model consists of five phases, three milestone decisions, and four additional decisions. (DoDI, 2020). Chung, Feldman and Manuel outline the phases in the generic model (Chung, Feldman and Manuel, 2018):

> The five phases from beginning to end are Materiel Solution Analysis (MSA), Technology Maturation and Risk Reduction (TMRR), Engineering and Manufacturing Development (EMD), Production and Deployment (P&D), Operations and Support (O&S). The seven decisions are the Materiel Development

> Decision (MDD); Risk Reduction Decision or Milestone A (MS A); Capability Development Document Validation; Development RFP Release Decision; Development Decision or Milestone B (MS B); Low-Rate Initial Production or Limited Deployment Decision, called Milestone C (MS C); and Full Rate Production Decision. The MDD initiates the acquisition process, but MS B initiates an acquisition program unless the program enters the acquisition life cycle directly at MS C (Department of Defense [DoD], 2017). The program manager (PM) must develop an acquisition program baseline (APB), and the Milestone Decision Authority (MDA) must approve the APB prior to initiating a program.
>
> The APB establishes an MDAP's cost, schedule, and performance requirements and serves as the baseline for tracking and reporting program status during the program increment or life (DoD, 2017). The term program schedule refers to the approved APB schedule. Negative schedule deviations from the APB delay delivery and are known as 7 schedule overruns or schedule slips. Congress, leaders within the Executive Branch, and academia primarily focus on these negative program schedule deviations, rather than PALT, because this deviation means that the defense acquisition workforce and contractor delivered a capability later than planned. (p. 6-7)

Figure 5

Defense Acquisition Milestones (Swartz, 2010)



Moses Swartz provides the parameters for entering the Defense Acquisition System (Swartz, 2010):

> To enter the Defense Acquisition System, a program must pass a Materiel Development Decision (MDD) review. The Milestone Decision Authority (MDA) determines if a program will enter the acquisition management system. The MDA can authorize a program to enter at any point in the acquisition system as long as the program meets the standards for that phase of the system. For example, a program can enter the system at Milestone B if 1) a Material Development Decision is made, 2) the program meets the criteria for entering into Milestone B as set forth by statue and DOD policy, and 3) the MDA authorizes the program to enter at Milestone B. (p. 8)

D. Close examination of the acquisition activities (DoD 5000 type acquisition) that precede PALT, as part of ARLT, highlighting the purpose and activities that occur in each:

DOD INSTRUCTION 5000.85 MAJOR CAPABILITY ACQUISITION establishes policy and prescribes procedures that guide the acquisition of major capability acquisition programs, including major defense acquisition programs. The major phases are summarized below (MDAPs) (DoDI 5000.85, 2020):

> **ACQUISITION PROCESS DECISIONS AND PHASES.** Acquisition decisions will be made at the lowest authorized level, commensurate with the ACAT and program risk, to ensure they are timely, and made by those with the greatest knowledge of the program. b. Figure 2 depicts the major capability acquisition model. The paragraphs that follow describe the decision points and activity phases that apply to almost any acquisition.
>
> **MDD.** The MDD is the mandatory entry point into the major capability acquisition process and is informed by a validated requirements document (e.g., an initial capabilities document (ICD) or equivalent) and the completion of the analysis of alternatives (AoA) study guidance and the AoA study plan. The MDA will determine the acquisition phase of entry and the initial review milestone. MDA decisions will be documented in an ADM. The approved AoA study guidance and study plan will be attached to the ADM.

MSA PHASE. The purpose of this phase is to conduct the AoA and other activities needed to choose the concept for the product to be acquired, to begin translating validated capability gaps into system specific requirements, and to conduct planning to support a decision on the acquisition strategy for the product. During this phase, the CAE will select a PM and establish a program office to complete the actions necessary to plan the acquisition program and prepare for the next decision point. The actions described in Paragraph 3.2.b. will be completed in time to support planning for the initial program milestone.

MILESTONE A. Milestone A approves program entry into the technology maturation and risk reduction (TMRR) phase, approval of the program acquisition strategy, and release of the final request for proposals (RFPs) for TMRR activities. A draft capability development document (CDD) approved by the DoD Component informs the acquisition strategy and the RFP for TMRR. At the Milestone A Review. (1) The PM will present the acquisition strategy, the business approach, “Should Cost” targets, framing assumptions, an assessment of program risk and planned mitigation actions, and initial PS planning.

TMRR PHASE. The TMRR phase is guided by the draft CDD and the acquisition strategy. The purpose of this phase is to reduce technology, engineering, integration and life-cycle cost risk to the point that a decision to contract for EMD can be made with confidence in successful program execution for development, production and sustainment. During the TMRR

phase, the requirements validation authority will validate the CDD (or equivalent requirements document) for the program. This action will precede the Development RFP release decision point.

DEVELOPMENT RFP RELEASE DECISION POINT. The purpose of the Development RFP release decision point is to ensure, prior to the release of the solicitation for EMD, that an executable and affordable program has been planned using a sound business and technical approach. The objective is to ensure that the program requirements to be proposed against are firm and clearly stated, that the risk of committing to development (and eventually production) has been adequately reduced, that program security has been accommodated, and the program strategy and business approach are structured to provide value to the government while treating industry fairly.

MILESTONE B. The Milestone B decision authorizes a program to enter into the EMD phase and commit the required investment resources to support the award of phase contracts. Requirements for this milestone may have been satisfied at the Development RFP release decision point; however, if significant changes have occurred between the two decisions that would alter the decisions made at the earlier point, those changes will be addressed at the Milestone B review. The MDA will approve entry into the EMD phase and formally initiate the program by approving the acquisition program baseline (APB). The program decisions, EMD phase exit criteria, approval of the LRIP quantity, and specific technical event-

based criteria for initiating production or fielding at Milestone C will be documented in an ADM.

EMD PHASE. The purpose of the EMD phase is to develop, build, test, and evaluate a materiel solution to verify that all operational and implied requirements, including those for security, have been met, and to support production, deployment and sustainment decisions. The program will complete all needed hardware and software detailed designs. A critical design review assesses design maturity, design build-to or code-to documentation, and remaining risks, and establishes the initial technical baseline. It will be used as the decision point that the system design is ready to begin pre-production prototype hardware fabrication or software coding with acceptable risk. If a preliminary design review prior to Milestone B was waived, it will be scheduled as early as possible during this phase. A current acquisition strategy and applicable elements of the RFP will be required to support this decision. The EMD phase will end when the design is stable; the system meets validated capability requirements demonstrated by developmental, live fire (as appropriate), and early operational testing; manufacturing processes have been effectively demonstrated and are under control; software sustainment processes are in place and functioning; industrial production capabilities are reasonably available; program security remains uncompromised; and the program has met or exceeds all directed EMD phase exit criteria and Milestone C entrance criteria per the MDA’s direction.

MILESTONE C. Milestone C is the point at which a program is reviewed for entrance into the P&D phase. The MDA's decision to approve Milestone C will authorize the program to proceed to the P&D phase, enter LRIP, or begin limited deployment for AISs, and award contracts for the phase.

P&D PHASE. The purpose of the P&D phase is to produce and deploy requirements-compliant materiel solutions to the receiving operating organizations. b. (2) For MDAPs, and other programs on the Director of Operational Test and Evaluation (DOT&E) Oversight List, the DOT&E will provide a report providing the opinion of the DOT&E as to whether the program is operationally effective, suitable and survivable before the MDA makes the decision to proceed beyond LRIP or limited deployment. If LRIP is not conducted for programs on the DOT&E oversight list, production representative test articles must be provided for the conduct of operational and live fire testing.

FRP DECISION OR FD DECISION. T**h**e MDA will conduct an FRP decision review to assess the results of initial OT&E and initial manufacturing to determine whether to proceed to FRP. Proceeding to FRP requires control of the manufacturing process, acceptable performance and reliability, the establishment of adequate sustainment and support systems, and for MDAPs, an ICE and an ITRA. (p. 11-17)

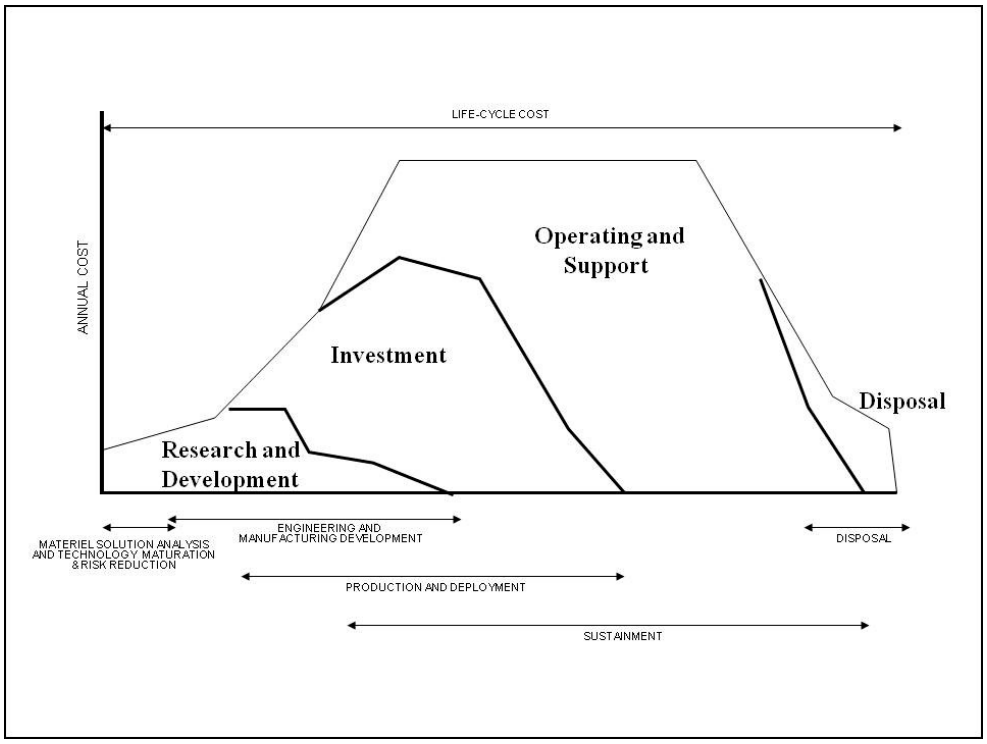
Chapter 3 - Analysis & Findings

Procurement Administrative Lead-time

Figure 6 depicts a notional profile of annual program expenditures by major cost category over the system life-cycle.

Figure 6

Illustrative System Life Cycle (DoD, 2014)



The journal of Costs Analysis and Parameters calls Milestone B the official program initiation (Jimenez, White, Brown, Ritschel, Lucas, Seibel, 2016). Over 70 percent of a system's life-cycle cost is determined by Milestone B; therefore, the largest impact can be made during the early program stages that precede Milestone B (Deitz, Eveleigh, Holzer, Sarkani 2013). The GAO looked specifically at cost and schedule overruns relative to the Analysis of Alternatives (AoA) which occurs during the MSA Phase.

Procurement Administrative Lead-time

According to the GAO, this is where a large majority of programs streamline, reduce, or cut activities to save time and funding. Unfortunately, (GAO 2009a):

> Out of 32 programs reviewed by the GAO, 60 percent of the programs that completed limited scope in their AoAs experienced significant cost and/or schedule overruns compared to less than 10 percent in those programs that completed a robust AoA. (p. 6)

Deitz, Eveleigh, Holzer, Sarkani state (Deitz, Eveleigh, Holzer, Sarkani 2013):

> Today, programs are required to do more with less. With 70% of a systems' life cycle cost "set" at pre-Milestone B, the most significant cost savings potential is prior to Milestone B. Pre-Milestone B efforts are usually reduced to meet tight program schedules. While pre-Milestone B efforts only account for less than 10 percent of the total life-cycle cost, they are the most important 10 percent of funding because they set the acquisition program on a sound foundation and business case. Errors in this phase cost between three and 10 times more to fix in later phases. (p. 303-304)

The GAO recommended to the DoD that new criteria should be set for execution of AoAs, with the DoD agreeing to the recommendation [GAO], 2009a):

> Developing a robust Analysis of Alternatives (AoA) early in the concept phase of the acquisition program (prior to Milestone A) and the effects such development may have on program success.

Procurement Administrative Lead-time

> While current statutes require that program managers complete an AoA for all Acquisition Category (ACAT) programs, the quality of the AoA is the predominant indicator for program success and consists of more than just completing a study (Government Accountability Office [GAO], 2009a). In 2008, the Department of Defense (DoD) had 96 major defense acquisition programs, which experienced a cost growth of $296 billion and an average schedule delay of 22 months. The GAO completed a study in 2009 where it identified one of the key causes for this cost and schedule growth as the mismatch between the requirements of the systems and the resources to provide them. GAO further stated that programs enter the acquisition process with requirements that are not fully understood, cost and schedule estimates that are based on optimistic assumptions, and a lack of sufficient knowledge about technology, design, and manufacturing. (p. 1)

The DoD has a history of rushing programs into development or production that are not ready due to various program constraints. (Deitz, Eveleigh, Holzer, Sarkani 2013).

The GAO provided the following example (GAO, 2001):

> The Joint Strike Fighter was intended to produce an affordable aircraft, but ended up being the most expensive aircraft program in DoD with over $200 billion for 3,000 aircraft. GAO attributed a major factor for the cost

> overrun to the program's premature entry into the engineering, manufacturing, and development phase prior to the maturation of critical technologies. (p. 11)

The Navy has entered into shipbuilding contracts without fully maturing component technologies, resulting in a 193 percent cost growth on Littoral Combat Ship 1 and a 52-month delay on Landing Platform Dock 17 (GAO, 2009b). This rush is not just on large ACAT I programs, but also on smaller ACAT programs (Pincus, 2012). The Navy Organic Airborne and Surface Influence Sweep (OASIS) program just experienced a cost increase from $55 million to $135 million, with an 8-year delay in fielding. This system still has not met the requirement to continue operating after being hit by a shock wave from a mine or ordnance explosion (Pincus, 2012). The latest results from the last Department of Defense Inspector General (DoDIG, 2012) study indicated OASIS met only 65 percent of its shock requirement and would not work (DoDIG, 2012).

Deitz, Eveleigh, Holzer, Sarkani state (Deitz, Eveleigh, Holzer, Sarkani, 2013):

> While pre-Milestone B efforts only account for less than 10 percent of the total life-cycle cost, they are the most important 10 percent of funding because they set the acquisition program on a sound foundation and business case. Errors in this phase cost between three and 10 times more to fix in later phases. The GAO recommended to the DoD that new criteria

> should be set for execution of AoAs, with the DoD agreeing to the recommendation. (p. 304)

Early information is vital. Deitz, Eveleigh, Holzer, Sarkani provided the following data concerning program life cycle costs and control (Deitz, Eveleigh, Holzer, Sarkani, 2013):

> Within the increasingly constrained fiscal environment in which the DoD must operate, program life-cycle cost control is especially important. All DoD programs, no matter which ACAT level is involved, follow a program path that has an impact on life-cycle costs. Smaller ACAT programs can streamline or skip minor steps, but the overall acquisition process is the same. Only 10 percent of the program's life-cycle cost is invested during the system's research and development phase up to the system's initial operational capability; however, this may be the most important 10 percent of the system's life-cycle cost. As this phase commits 70 percent of the program's life-cycle costs, focusing significant time and effort to assure that all alternatives are considered is very important. (p. 287)

Deitz, Eveleigh, Holzer, Sarkani wrote the following concerning the importance of the Analysis of Alternatives (Deitz, Eveleigh, Holzer, Sarkani, 2013):

> In today's environment, program managers are encouraged to move as quickly as possible to meet urgent operational requirements, replacement schedules, or

> to save time. Because the majority of the pre-Milestone B work is level of effort, shortening this effort is easier than shortening the design and fabrication work. While this approach may be appealing to many program managers and requirements officers, the acquisition efforts leading to Milestone B set the foundation for the program. The work in this phase defines the acquisition strategy and life-cycle cost. (p. 287-288)

In 2009, GAO analyzed 32 major defense acquisition program starts since fiscal year 2003 (GAO, 2009a):

> The GAO (2009a) report found that narrowing the AoA scope to life-cycle cost did not enable the identification of the most promising alternative, and reducing the AoA schedule did not allow enough time to complete a thorough analysis. The GAO study recommended that DoD develop guidance for conducting robust AoAs to adequately select an alternative. (p. 26)

Chapter 4 - Conclusion/Recommendations

Should DoD define the start date of PALT as the date the solicitation was released, as outlined by Congress in the NDAA for FY 2019, or is there an earlier start date that could significantly enhance the insight derived from measuring PALT, decrease the procurement lead time, and ultimately deliver capabilities to the warfighter in a timelier manner? In today's reduced budget and constrained fiscal environment, making acquisition decisions that provide the best value to the nation's armed forces and the DoD is extremely important (Deitz, Eveleigh, Holzer, Sarkani 2013). This study has closely examined the literature that relates to the five (5) stages of the acquisition process and also analyzed the vast amount of data and assessments made by GAO that result within DoD when PMOs rush through pre-milestone B activities. Pre-Milestone B efforts (representing only 10%) are the most important because these set the acquisition program on a sound foundation and business case. Errors in this phase cost three and 10 times more to fix in later phases. (Deitz, Eveleigh, Holzer, Sarkani 2013).

Recommendation #1 - DoD should define the start date of PALT as the date the Milestone B decision is obtained.

MS B initiates an acquisition program unless the program enters the acquisition life cycle directly at MS C (Department of Defense [DoD], 2017). Most programs

become a Program of Record at Milestone B (Schwartz, 2010). The Milestone B decision authorizes a program to enter into the EMD phase and commits the required investment resources to support the award of phase contracts. The requirements for moving to the EMD phase of the acquisition system where milestone B approval takes place are, among other things, a mature technology, approved warfighting requirements, full funding, and pass Milestone B (Swartz 2010). This research paper presented the importance of the pre-Milestone B acquisition phases in setting the foundation for the success of the program and the detrimental results of measuring PALT prior to Milestone B approval.

Recommendation #2 - DoD should include the data collected in the Procurement Integrated Enterprise Environment (PIEE) module for planned and approval of the Acquisition Strategy/Plan in data analysis for measuring PALT.

To pass Milestone B, the MDA must, approve the Acquisition Strategy, the Acquisition Program Baseline, and the type of contract that will be used to acquire the system (Swartz, 2010). Defense Federal Acquisition Supplement (DFARS), and Procedures Guidance and Information (PGI) require that when conducting an acquisition with an estimated value greater than $250 million, agencies shall ensure planned and actual PALT milestone dates are entered into the PIEE module (PGI 204.70, 2019). While not currently considered in the definition for PALT recommended by Congress and adopted by DoD, the PIEE module currently requires PMOs within all the DoD components to enter the acquisition strategy/acquisition plan approval date as the first data entry in the PIEE module. The OFPP acknowledged that (OFPP, 2020):

> as technology improves and the ability to capture better and more comprehensive procurement and requirements data becomes easier, there may be opportunity to collect and track additional data points and timeframes beyond those covered by the proposed definition of PALT. Further, OFPP acknowledged that agencies may already collect and track additional data points and timeframes outside of the proposed definition, such as from the time a complete requisition package is received by the procurement office. OFPP encouraged the use of these broader efforts, as they are able to assist in the management, support, and evaluation of agency procurement operations. (p. 4)

Recommendation #3 - DoD should change the definition of PALT to be defined as the number of days between Milestone B approval and contract award.

PALT can create incentives to drive greater efficiencies in the requirements development process, which has long been recognized as one of the most significant sources of delay in the acquisition lifecycle (OFPP 2020). The earlier in the process data is collected the greater the opportunity for success. The ability to capture data routinely during the EMD Phase allows for earlier engagement during requirements development. Establishing a common PALT definition as well as a plan to measure and report it that is initiated during the requirements development process (ARLT) can help the government pin down delays in the procurement process without causing adverse consequences to programs and budgets. Equipped with this common definition that starts earlier in the acquisition process, agencies have the opportunity to use this common data to make greater improvements to the process. These simple changes in

the start of PALT, how PALT data is analyzed and the amended definition of PALT, have the potential to significantly enhance the insights derived from measuring PALT and help pin down delays in the procurement process.

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Glossary of Acronyms and Abbreviations

ACAT - Acquisition Category

ACC- Army Contracting Command

ADM – Acquisition Decision Memorandum

AIS – Automated Information System

ALT – Acquisition Lead-time

AoA - Analysis of Alternatives

APB – Acquisition Program Baseline

ARLT – Acquisition Requirements Lead-time

ASA (ALT) - Assistant Secretary of the Army (Acquisition, Logistics and Technology)

BAA - Broad Agency Announcement

CAE – Component Acquisition Executive

Procurement Administrative Lead-time

CDD – Capability Decision Document

DAS – Defense Acquisition System

DAU – Defense Acquisition University

DFARS - Defense Federal Acquisition Supplement

DoD – Department of Defense

DoDI - Department of Defense Instruction

DoDIG - Department of Defense Inspector General

DOT&E – Director of Operational Test and Evaluation

DPC - Defense Pricing and Contracting

EMD – Engineering and Manufacturing Development

FRP – Full Rate Production

FY – Fiscal Year

GAO – General Accountability Office

HQ – Headquarters

ICD - Initial Capabilities Document

ICE – Independent Cost Estimate

IOC – Initial Operational Capability

ITRA – Independent Technical Risk Assessment

JCIDS - The Joint Capabilities Integration and Development System

LRIP – Low Rate Initial Production

MDA – Milestone Decision Authority

MDAP – Major Defense Acquisition program

MDD – Material Development Decision

MSA - Materiel Solution Analysis

MS A – Milestone A

MS B – Milestone B

MS C – Milestone C

NDAA - National Defense Authorization Act

NDS – National Defense Strategy

Procurement Administrative Lead-time

PALT – Procurement Administrative Lead-time

PGI - Procedures Guidance and Information

SAT – Simplified Acquisition Threshold

SES - Senior Executive Service

SSCF – Senior Service College Fellowship

O&S - Operations and Support

OASIS - Organic Airborne and Surface Influence Sweep

OFPP - Office of Federal Procurement and Policy

OPSEC - Operations Security

OT&E – Operational Test and Evaluation

P&D - Production and Deployment

PEO – Program Executive Officer

PEO IWE&S – Program Executive Office Intelligence Electronic Warfare Sensors

PIEE - Procurement Integrated Enterprise Environment

PM – Program Manager

PPBE - Planning, Programming, Budgeting, and Execution

RFP – Request for Proposal

TMRR- Technology Maturation and Risk Reduction

VCE –Virtual Collaborative Environment